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CLINICAL CLASSIFICATION OF HIP-DISEASE.

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A CLINICAL CLASSIFICATION OF HIP-DISEASE.[1]

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It is a matter of common information that the affection known as hip-disease presents itself in widely differing aspects, being at times a mild and benignant disease which runs a brief and favorable course, while at other times it appears as a malignant destructive process which is often but little affected by the therapeutic measures at our command. Between these two extremes many intermediate degrees are represented practically, so that the condition described as hip-disease stands for an affection which varies within very wide limits.

So far as I know there has been no attempt made to formulate these different aspects of the disease, and no definite classification of types, if there are any, has ever been presented. And yet such a classification, could it be made, might be of the greatest practical value. If the different phases of the disease could be recognized early, much might be gained, not only in the study of the affection, but as an aid in the prognosis and treatment. If, for example, a classification could be made and certain cases recognized fairly early as belonging to the rapid, destructive form which we all know so well, then more radical and more stringent methods of treatment might be undertaken, which might make an important difference in the outcome of the disease in those cases.

Such a classification, of course, should rest on a

[1] Read before the American Orthopædic Association in New York, September 20, 1892.

pathological basis if possible, but one has only to survey the field of the pathology of hip-disease, to realize that such a pathological classification is not for the present feasible. It is only of late years that hip-disease could be said to have any pathology at all, and now we know little more than that the affection generally begins as a tuberculous ostitis of the head of the femur, and passes on to affect the synovial membrane and in most cases to eventuate in a more or less destructive inflammation of all the joint structures. This we know from certain early autopsies and from the work of those surgeons who believe in and practise early excision.

But what symptoms are associated with the involvement of the various structures we do not know; we may theorize upon the subject, but we have no pathological knowledge sufficient to enable us to assert that certain phenomena mean that the bone is affected, or that certain others mean the involvement of the synovial membrane in other than exceptional cases.

Certain writers claim to be able to diagnosticate between synovial and osseous disease, and even between femoral and acetabular hip-disease. I fancy that the majority of us feel unable to make these distinctions in general, however evident they may be in exceptional cases. I can only speak for myself in saying that it is a diagnosis that in most cases I feel utterly incompetent to make, and that until the clinical symptoms are more accurately associated with the pathological conditions which cause them, it seems to me that a pathological classification of that sort is premature, and likely to be of little practical value. On the other hand, if the disease can be subdivided clinically and so studied, and if these clinical types are found to be associated with different types of a common

pathological process, it seems to me that such a method will best serve the more accurate study of this disease and will lead in time to an accurate pathological classification.

It is such a clinical classification that I have to present to you, which I hope to demonstrate rests on a pathological basis after all. It is necessarily a preliminary paper to a certain extent, and I have been much hampered in its preparation by my lack of knowledge of practical surgical pathology.

Hip-disease, I believe, falls into four well-marked types, each of which corresponds to a particular type of the pathological process.

These four types are:

(*a*) *The Destructive Form*, where the disease is rapid, severe, and but little influenced by ordinary treatment; extensive infiltration of the soft parts takes place, and in most instances the disease passes on to a fatal issue.

(*b*) *The Painful Form*, where pain is a prominent symptom, and exacerbations are common.

(*c*) *The Quiet or Painless Form*, where pain is an unimportant factor or is entirely absent.

(*d*) *The Transient or Ephemeral Form*, where the symptoms are mild and the course of the disease is run in a few months.

(*a*) *The Destructive Form.* — The type of hip-disease which I would place in this class occurs most often in children of tuberculous inheritance and poor vitality. Its onset is rapid and painful, often excessively painful. There is, almost from the first, much thickening of the trochanter and periarticular tissues. The general condition is rapidly impaired, and abscess formation takes place early. One abscess follows another with profuse discharge through sinuses which open widely and are surrounded by colorless granu-

lations. This type of disease most often begins as such, and is clearly a type by itself throughout. At other times, but rarely, it is superadded to one of the forms about to be described. The temperature is high, the wasting rapid, and a porky induration of the thigh ensues.

Such children, as I have observed them, die most often of exhaustion, they are particularly liable to tubercular meningitis, and, if they live, it is these cases that develop amyloid degeneration. The course of the disease is rapid in most cases, and the prognosis is poor. Under favorable conditions a certain proportion recover with stiff and shortened legs, others are saved only by excision.

It seems probable that in some of these cases at least, the disease is an acute infectious osteomyelitis, not necessarily produced by the bacillus of tuberculosis or by any specific bacillus, but being a local septic process, a pyæmia, caused most often by the staphylococci, exceptionally by the streptococci. The rapidity and the destructive character of the process in some cases points to a pathological state more likely to be due to a process of this sort than to tuberculosis.

In other cases it is doubtless merely a tuberculosis of unusually rapid and extensive character. Certain individuals, either by inheritance or by peculiarity of constitution, offer a most favorable soil for the rapid development of the tubercle bacillus and if these individuals should happen to receive a large initial dose of the poison, it is not unreasonable to expect that in them the disease would be extensive, rapid and destructive.

Probably the infiltrated form of tuberculosis is more common than the encysted form in these cases. The whole spongy tissue of the epiphysis is probably suddenly filled up with a creamy tuberculous infiltra-

tion which degenerates most rapidly and erodes most extensively the surrounding parts. In other cases the encysted form is probably present but possesses unusual capabilities for destructive and rapid growth. So that just as in pulmonary tuberculosis the florid form of phthisis stands off from the more chronic manifestations, so in bone tuberculosis one finds a rapid and destructive form of the disease.

(*b*) *The Painful Form.* — This, the commonest type of hip-disease, is described as the painful form for want of a better name. It serves to distinguish it from the quiet or painless form to be described next, yet it is only descriptive of one symptom. The cases that I have in mind are those irritable cases which form the bulk of the disease where pain is caused by manipulation and is present in the form of night-cries and continued pain. It is not steadily present, and is controlled to a greater or less extent by treatment, but the tendency to pain exists and painful exacerbations come on spontaneously or are caused by slight traumatisms.

Muscular spasm is, of course, an integral symptom of all forms of hip-disease, and is always present in painful cases as in the others. Generally some motion is allowed in the joint, but the muscles are quick to catch and hold the joint when the limit of motion is reached.

Malpositions of the limb are very common and come on rapidly, generally with an exacerbation of pain and with complete muscular fixation, but they yield readily to treatment and motion returns to the joint to a certain extent. In short, the muscular spasm varies so that while most often considerable motion may be allowed in the joint, again complete fixation may be present for a longer or shorter time. Abscess formation is common in this form and is most

often preceded by an acute exacerbation of pain. Thickening of the trochanter is always present but is moderate in amount.

In short, the type is the common one to be found in hip-disease. It occurs more often in children under six years than does the painless type, and although the term "painful" describes only one feature of it, this feature is the most characteristic and the most persistent. Joint irritability, pain and rapid deformity are its striking characteristics.

The general course of the disease, I believe, is shorter than in the painless form, to be described next, and the joint likely to be a better one after the disease has run its course, consequently I should be inclined to give a better prognosis as to a rapid and favorable issue, other things being equal, than in the quiet and painless type of the disease.

(*c*) *The Painless or Quiet Form.* — This name represents, it seems to me, a well-marked and distinct type of hip-disease which we can all recognize. It seems, moreover, to apply to a certain type of joint-disease in general, but that is aside from the present question.

In the hip there is undoubtedly one form of inflammation that runs its course quietly, slowly and with little or no pain; it is these cases which I have included in this type. Pain as a prominent symptom is absent, although night-cries may be present early in the disease, and later a painful stage may be brought on by a fall or by some traumatism to the joint. In general, muscular spasm is the important and prominent feature in this form of the disease; it is persistent and most often allows no motion, but holds the joint rigidly fixed. Passive manipulation is not painful, but fails to move the joint.

The malpositions in this form occur slowly and are much more persistent and intractable than in the

painful cases, and yield very slowly to treatment. Thickening of the trochanter is considerable, but the atrophy and shortening of the limb are more marked than in any other type of hip-disease, being often extreme. This quiet and comparatively painless type of hip-disease is more likely to occur in children over six years of age than in younger children, and it is not so liable as the other forms to occur in children of a marked tuberculous taint. Such cases are common enough; some go through the whole course of the disease without any pain, while others have it only temporarily, perhaps as the result of some traumatism.

In general this type runs a slower course, is less likely to abscess-formation, and is likely to end in a stiff joint. It is not so likely to mishaps as the preceding form, but the functional results are not apt to be so good in the matter of motion, shortening or atrophy.

The pathology of painful and painless hip-disease can best, perhaps, be discussed in one place. In general the presence of foci of tuberculosis in the head of the femur is not in itself likely to excite pain except when the foci are near enough to the articular surface to involve the synovial membrane in the irritation which surrounds them. But a large proportion of active foci of tuberculosis which form about the epiphysis are on the articular side of the epiphysis and grow toward the joint surface, consequently it is reasonable to suppose that most active foci will cause synovial irritation and pain in the course of their growth. The early autopsies of Lannelongue have shown more clearly than anything else that pain begins when the synovial membrane becomes affected; but that the synovial membrane is often affected without the occurrence of pain, is shown by daily observation in advanced cases of hip-disease where pain has

never been a symptom. For this reason I take it that painful hip-disease represents the ordinary form of bone-tuberculosis where foci form in the epiphysis and involve the joint in their growth. They are surrounded by a zone of hyperæmia and irritation, and generally break down into pus. This is the most common form clinically and pathologically.

Cases without pain, which I have classed as painless or quiet cases. I assume are caused by a different form of bone tuberculosis, a well-recognized form pathologically where the tendency is not toward purulent but toward fibrous degeneration. The older name was "caries sicca" but the newer pathology in dropping the term caries, speaks of it merely as a fibroid form of bone tuberculosis.

The process is the same in general as that of ordinary bone tuberculosis, except that the foci are surrounded by less irritation and hyperæmia, and in place of it a condensing process goes on around. It is a bone-tuberculosis just as the other is, but it causes much less irritation around it, it is slower in its progress and it has little or no tendency to purulent degeneration. It is a well-recognized type of bone tuberculosis and its characteristics are well-established. It must be evident that it seems to furnish a reasonable pathological explanation for those cases of quiet or painless hip-disease which are not by any means the most common manifestation of the disease, but which are so common as to be familiar to us all.

(*d*) *The Transient or Ephemeral Form.*[2] — I have included under this head those somewhat unusual cases of hip-disease which begin in a typical way but subside in the course of a few weeks or months. These cases

[2] R. W. Lovett and J. L. Morse : A Transient or Ephemeral Form of Hip-Disease, Boston Medical and Surgical Journal, August 18, 1892.

would at first be set down as due to simple acute synovitis, but some of them show plainly enough that there is a bony lesion at the foundation of the trouble. They simulate cases of acute synovitis very closely, of course.

A typical case is the following: Frank F., eight years old, came to the Children's Hospital in September, 1889, six weeks after a slight fall. He was lame; he had night-cries and pain; and the trochanter was slightly thickened. Flexion, hyperextension and rotation were all limited by muscular spasm. The diagnosis of hip-disease was made, but recovery was unusually rapid, and in three months motion was free. Two years and a half later there is shortening of one inch in that leg; no atrophy, but marked trochanteric thickening; motion at the joint is free.

Here there is a case which seems to be a true bony lesion affecting the growth of the bone, which recovered permanently in three months. Such cases are not altogether uncommon, even when cases of pure acute synovitis are left out of account.

The early symptoms of these cases give no clue to the fact that they are not routine cases of hip-disease. Muscular spasm, pain, atrophy, night-cries, etc., are all present, and the case in every way resembles the beginning of mild hip-disease. It is only in the light of its later history that its true character becomes evident.

It will be seen that these cases do not present any early symptoms different from those of hip-disease of the common type, so that their recognition seems impossible; moreover, hip-disease is characterized by such marked remissions of symptoms that this type of disease is easily simulated in that way. But the fact remains that, even if one leaves out of consideration cases of acute synovitis, certain cases presenting all

the symptoms of true hip-disease run their course to a favorable termination within a few weeks or months, and the matter is one of such practical importance that it deserves recognition.

With regard to pathology, all must be conjectural. It is probable that in these cases the focus of tuberculous disease is situated in a part of the epiphysis remote from the joint, and that in its growth it causes enough disturbance in its neighborhood to give rise to symptoms of joint irritation. Having caused these symptoms of joint irritation, it seems probable that the focus of disease either becomes quiescent or grows away from the joint if it continues active, and after a brief time the symptoms subside once more.

Allow me once more to name these types of the disease:

(*a*) *Destructive Hip-Disease*, due to a florid tuberculosis of bone or to an acute infectious osteomyelitis.

(*b*) *Painful Hip-Disease*, due to the ordinary form of focal bone tuberculosis, where irritation surrounds the foci and the tendency is to purulent degeneration.

(*c*) *Painless or Quiet Hip-Disease*, due to the fibroid form of focal bone tuberculosis, where there is little irritation surrounding the foci and a tendency to the deposit of fibrous tissue.

(*d*) *Transient or Ephemeral Hip-Disease*, due probably to a focus of tuberculosis, which is rapidly absorbed or is so far removed from the joint that it causes little or no synovial irritation.

Whether or not these types will meet with your acceptance, I have no means of knowing. Any classification in our present state of knowledge must be to a certain extent a preliminary one and subject to change when our knowledge of pathology becomes more extensive. I present it purely as a clinical classification, moreover, although I have tried to give it a

pathological foundation. The types are not always well-marked, and border-line cases are common, but that is the case in any scheme of classification, pathological or clinical. I offer it in the hope that it may serve some of us in a more accurate study of the disease.